

Claims

1. A data collection system having:
 - (a) at least one sensing means to detect and receive a visible light signal;
 - (b) an optical characteristic recognition processing means which receives signals from said at least one sensing means;
 - (c) at least one optical signal means associated with a respective one of said sensing means which generates, reflects or transmits visible light to said sensing means;wherein said optical signal means causes an optical characteristic to be visible to, or sensed by, said sensing means, said optical characteristic being caused to change when the relative angle between said sensing means and said at least one optical signal means is changed, whereby change in said optical characteristic is processed by said processing means to identify a physical or other characteristic of said at least one optical signal means.
2. A system as claimed in claim 1, wherein said optical characteristic is one or a combination of one or more of the following: a pattern; an indicia; a colour; a shape.
3. A system as claimed in claim 1 or 2, wherein said physical or other characteristic of said at least one optical signal means is a change in angle of orientation between said at least one optical signal means and said at least one sensing means.
4. A system as claimed in claim 3, wherein said change in angle of orientation is communicated to a CPU for use in processing to identify or quantify the change in angular orientation between said at least one sensing means and said at least one optical signal means.
5. A system as claimed in any one of claims 1 to 4, wherein said data collection system is used as part of an identification system, with said at least one optical signal means acting as a key.
6. A system as claimed in any one of the preceding claims, wherein said at least one sensing means is at a stationary reference point.
7. A system as claimed in any one of the preceding claims, wherein said at least one sensing means does not change its orientation relative to earth.

8. A system as claimed in any one of the preceding claims, wherein said at least one optical signal means is positioned on an object the orientation of which is being sensed relative to said at least one sensing means' orientation.
9. A system as claimed in any one of claims 1 to 8, wherein said at least one optical signal means is at a stationary reference point.
10. A system as claimed in any one of the preceding claims, wherein said at least one optical signal means does not change its orientation relative to earth.
11. A system as claimed in any one of the preceding claims, wherein said at least one sensing means is positioned on an object the orientation of which is being sensed relative to said at least one optical signal means' orientation.
12. A system as claimed in any one of the preceding claims, wherein said at least one optical signal means produces a visible signal by means of reflected and or transmitted light.
13. A system as claimed in claim 12, wherein said at least one optical signal means utilises one or a combination of more than one of the following: a holographic system, a lenticular system, a polarised filter system
14. A system as claimed in claim 13, wherein said holographic system, said lenticular system or said polarised filter system each has one, or a sequence of more than one, image associated therewith.
15. A system as claimed in any one of the preceding claims, wherein said at least one optical signal means is one or more lenticular systems.
16. A system as claimed in claim 15, wherein more than one lenticular system is utilised with respective lenticular images viewable in a respective one of said more than one lenticular system when viewed from different orientations.
17. A system as claimed in claim 15 or 16, wherein columnar lenticules are utilised in said lenticular system.
18. A system as claimed in claim 17, wherein multiple lenticular systems are used with the columnar direction of the lenticules of each respective lenticular system being at a different angle to each of the other lenticular systems.
19. A system as claimed in any one of the preceding claims wherein said at least one optical signal means is made up of a plurality of lenticular systems, with each lenticular system being located in substantially the same planar orientation.

Customer No. 64884

18

20. A system as claimed in any one of claims 1 to 19, wherein said at least one optical signal means is made up of a plurality of lenticular systems, with one or more lenticular system being located in a different planar orientation to the rest of the lenticular systems.
21. A system as claimed in claim 20, wherein two lenticular systems are used with the angular spacing, between the columnar lenticules on one lenticular system relative to the other lenticular system, is 90°.
22. A system as claimed in claim 20, wherein three lenticular systems are used with the angular spacing, between the columnar lenticules between respective lenticular systems, is 120°.
23. A system as claimed in claim 20 wherein four lenticular panels are used with the angular spacing, between the columnar lenticules of a first and second lenticular system, is approximately 90°.
24. A system as claimed in claim 23, wherein the angular spacing between a first set of first and second lenticular systems and a second set of first and second lenticular systems, is approximately 45°.
25. A system as claimed in any one of the preceding claims wherein said at least one optical signal means is located within a distinctively shaped panel or border to form a target.
26. A system as claimed in any one of the preceding claims wherein said at least one optical signal means is such that when said at least one optical signal means is viewed from different angles, then an exhibited pattern will change to a different pattern; or an exhibited indicia will change to a different indicia; or a exhibited colour will change to a different colour, or an exhibited shape will change to a different shape.
27. A system as claimed in any one of claims 1 to 22, wherein said at least one optical signal means is such that when said at least one optical signal means is viewed from different angles, then an exhibited pattern will change to one or more than one of: an indicia, colour or shape; or an exhibited indicia will change to one or more than one of: a pattern, colour, shape; or an exhibited colour will change to one or more than one of: a pattern, indicia, shape; or an exhibited shape will change to one or more than one of: a pattern, indicia, colour.
28. A system as claimed in any one of the preceding claims wherein indicia includes letters, numbers, symbols or any appropriate machine recognisable image.

29. A system as claimed in any one of the preceding claims wherein said sensing means is a digital camera or a digital video camera.
30. A system as claimed in any one of the preceding claims wherein there is only one sensing means and only one optical signal means.
31. A system as claimed in any one of the preceding claims wherein said processing means operates to identify the angular orientation by one or more of the following: comparing the light or images sensed from said optical signal means to a predefined table to determine orientation; processing by means of logical progression through an algorithm.
32. A system as claimed in any one of the preceding claims, wherein means is provided in said processing means, and said sensing means to calibrate a starting orientation of said optical signal means to said sensing means.
33. A system as claimed in any one of the preceding claims, wherein multiple sensing means are provided at different orientations to receive images from a generally stationary said at least one optical signal means.
34. A system as claimed in any one of claims 1 to 32, wherein multiple sensing means are provided at different orientations to receive images from said at least one optical signal means changing its orientation relative to a reference point.
35. A system as claimed in claim 33 or 34, wherein said system is used as an identification system and to obtain a positive identification image or images from said at least one optical signal means is or are from a set or subset of predetermined images.
36. A system as claimed in claim 35, wherein a time factor is associated with said set or subset of predetermined images.
37. A system as claimed in claim 36, wherein said time factor is satisfied by a predetermined image or combination of images being sensed by said at least one sensing means for a predetermined amount of time, or a sequence of images is sensed for a predetermined amount of time.
38. A system as claimed in any one of claims 35 to 37, wherein said at least one optical signal means also satisfies a predetermined sequence of images from said set or subset in order for a positive identification to result.
39. A gaming system such as a computer based, console based, arcade based gaming system, wherein a system as claimed in any one of claims 1 to 38 is utilised to provide orientation

data to a control system for said gaming system and or an identification mechanism to allow access to said gaming system.

40. A optical signal panel for use in an object orientation data collection system and or in an identification system, said optical signal panels including a plurality of optical signal means which independently or in association with each other produce a change in the visible signal emanating from said panel, said signal being adapted to be processed by a signal processing means to identify and or quantify the magnitude and or direction of change in orientation of said panel relative to a sensing means which senses said optical signal.
41. A panel as claimed in claim 40, wherein said panel includes at least two lenticular systems.
42. A panel as claimed in claim 41, wherein said at least two lenticular systems have their respective columnar orientations being at an angle to each other.
43. A panel as claimed in claim 42, wherein no two lenticular systems have the same columnar orientation on said panel.
44. A panel as claimed in any one of claims 41 to 43, wherein said panel includes one or a combination of more than one of the following visible through said lenticular systems: a pattern; an indicia; a colour; a shape.
45. A panel as claimed in any one of claims 40 to 44, wherein said plurality of optical signal means is such that when a respective one of said plurality of optical signal means is viewed from different angles, then an exhibited pattern will change to a different pattern; or an exhibited indicia will change to a different indicia; or a exhibited colour will change to a different colour, or an exhibited shape will change to a different shape.
46. A panel as claimed in any one of claims 40 to 44, wherein said plurality of optical signal means is such that when a respective one of said plurality of optical signal means is viewed from different angles, then an exhibited pattern will change to one or more than one of: an indicia, colour or shape; or an exhibited indicia will change to one or more than one of: a pattern, colour, shape; or an exhibited colour will change to one or more than one of: a pattern, indicia, shape; or an exhibited shape will change to one or more than one of: a pattern, indicia, colour.
47. A panel as claimed in claim 40, wherein said plurality of optical signal means produce a signal which is colour based.

Customer No. 64884

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21

48. A game controller or an identification tag or card including a panel as claimed in any one of claims 40 to 47.